



Patent No. 24180-124-004

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re U.S. Patent Application of:)
Applicant: CURIE *et al.*) Art Unit: 3627
Serial No.: 09/901,427) Examiner: R. Dye
Filed: July 9, 2001)
For: **TRANSPARENT MULTILAYER**)
POLYPROPYLENE CONTAINER)
WITH BARRIER PROTECTION)

37 C.F.R. § 1.132

DECLARATION OF DR. ROBERT KNOLL

Commissioner of Patents and Trademarks
Washington, D.C. 20231

Dear Sir:

I, the undersigned Robert Knoll, Ph.D., declares the following:

1. I was an employee of Pechiney Plastics Packaging, Inc. and a co-worker of the named inventors on the filing date of the present application.
2. I have received a Bachelor of Science degree in Nuclear Engineering (1973), a Masters of Science degree in Nuclear Engineering (1974), another Masters of Science degree in Materials Science (1978), and a Ph.D. in Engineering Physics/Nuclear Engineering (1981), all from the University of Wisconsin at Madison on the dates respectively indicated.
3. I have over twenty five years of experience as an innovative engineer and applied materials scientist. My experience as a materials scientist includes substantial research and analysis of polymers and polymer processing. For example, in my approximately eight years as a senior technical staff member at Johnson Controls, Inc., I conducted research and development

projects related to polymer blending (including polymer blending for injection molding) and biaxial large-strain deformation of hot polymers. In the approximately nine years I have spent as a senior research associate, and now research fellow, in polymeric materials development, I have conducted research and development projects related to development, analysis and implementation of polymers into production lines to improve product performance and manufacturing efficiency.

4. I have reviewed the disclosure filed in the above-identified patent application, including the specification, the drawings and the claims as filed with this application and with parent application Serial No. ⁰⁹/293,401. I have also read the Office Action mailed September 25, 2006 in the present application (the "Office Action"), including the following paragraph on page 4 of the Office Action:

Since WO 97/47468 teaches a similar laminate structure to that of Wilpers, it would have been obvious to one having ordinary skill in the art to have used the amount taught by WO 97/47468 in making the container of Wilpers to have provided adequate adhesion between layers. In view of the teachings or [sic] the applied prior art, it is the Examiner's position that the combination of art would have rendered obvious a biaxially stretched container having the recited layers....

5. I consider myself to be one having at least ordinary skill in the field of this invention and, for at least the reasons stated herein, I disagree with this assessment of the disclosure in this patent application.
6. The reheat stretch blow molding process entails injection molding a "preform" and letting the preform cool to ambient temperature. The preform is then reheated and then blown. The preform is typically blown while in the "rubbery state" which occurs somewhere between the glass transition temperature and the melting point.

7. Blow molding in this rubbery state provides strength to the container through crystallization and orientation of the polymer chains. Blow molding in the rubbery state breaks many of the bonds between layers in the preform. One of ordinary skill in the art understands that up to 90% of the bonding strength between layers is lost due to the breaking of bonds during reheat stretch blow molding. Because of the loss of bonding strength experienced with reheat stretch blow molding, one of ordinary skill in the art understands that a preform must have substantially more bonding strength than required by the final blown product to compensate for the up to 90% loss of bonding strength during blow molding. Where the bonding strength is provided by an adhesive, that compensation is achieved by increased amounts of adhesive.
8. Persons of ordinary skill in the art also understand that there are significant practical differences between multilayer containers and multilayer films. Given the same adhesive, the amount of that adhesive used in a film is unlikely to be sufficient in a container for adhering layers.
9. For the forgoing reasons, one of ordinary skill in the art would not look to Tsai for teachings of amounts of adhesive to employ in a reheat stretch blow molded container.
10. All statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true; and further these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code, and such willful false statements may jeopardize the validity of any patent confirmed hereon.

Respectfully Submitted,

Date: January 25, 2007

Robert W. Knoll, Ph.D.

Robert Knoll, Ph.D.

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